



United States Geological Survey

Certificate of Analysis

Syenite STM-1

A sample of peralkaline nepheline syenite was collected from a sill that underlies Table Mountain which is approximately 60 km WNW of Eugene, Oregon. The rock sample was light to medium gray and had a glassy luster. The material was holocrystalline and very fine to fine grained, having a very pronounced trachytic texture (Flanagan, 1976).

Element concentrations were determined by cooperating laboratories using a variety of analytical methods. Certificate values are based primarily on international data compilations (Abbey, 1983; Gladney and Roelandts, 1988; Govindaraju, 1994). Initial USGS studies (Flanagan, 1976) provide background information on this material.

Recommended values

Oxide	Wt %	±	Oxide	Wt %	±
SiO ₂	59.6	0.49	CaO	1.09	0.06
Al ₂ O ₃	18.4	0.23	MgO	0.10	0.02
Fe ₂ O ₃	2.87	0.02	Na ₂ O	8.94	0.20
FeO	2.09	0.03	K ₂ O	4.28	0.07
Fe ₂ O ₃ T	5.22	0.1	P ₂ O ₅	0.16	0.01
			TiO ₂	0.14	0.01

Element	µg/g	±	Element	µg/g	±	Element	µg/g	±
Ba	560	60	Gd	9.5	0.8	Sm	13	1
Be	9.6	0.6	Hf	28	2	Sr	700	30
Ce	260	18	La	150	6	Ta	19	1.2
Cl	460	40	Mn	1700	120	Tb	1.6	0.2
Cs	1.5	0.1	Nb	270	12	Th	31	3
Dy	8.1	0.5	Nd	79	7	U	9.1	0.1
Er	4.2	0.4	Pb	18	1.8	Y	46	5
Eu	3.6	0.3	Rb	118	6	Yb	4.4	0.4
F	910	50	Sb	1.7	0.2	Zn	235	22
Ga	35	5	Sc	0.61	0.07	Zr	1210	120

Element	µg/g	Element	µg/g	Element	µg/g
Ag	0.08	Co	0.9	Ni	3
As	4.6	Cr	4.3	S _{tot}	43
B	6.4	Cu	4.6	Sn	6.8
Bi	0.13	Li	32	Tm	0.7
Cd	0.27	Mo	5.2	V	8.7

Denver, Colorado
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Branch of Geochemistry

Glossary

$\text{Fe}_2\text{O}_3\text{T}$	Total iron expressed as Fe_2O_3
S_{tot}	Total concentration of sulfur
Wt %	Percent of total element concentration
$\mu\text{g/g}$	Total element concentration expressed as micrograms of element per gram of solid sample
\pm	One standard deviation

Notes

Unless otherwise indicated total element concentrations are reported for material on an as-received basis, i.e., no drying.

Ordering Information

USGS reference materials (RMs) may be obtained directly from Dr. Stephen A. Wilson at the address or numbers listed below. The price for each bottle of RM is \$65.00 (U.S.) **except** DGPM-1 which is \$150.00 (U.S.). This cost includes all shipping and handling charges using normal mail delivery. Urgent requests for RMs should be initiated by FAX or e-mail. If required, overnight delivery is available with these charges added to the final bill.

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Payment Procedure

Domestic customers: Payment options include purchase order, check, money order, or credit card (Visa, Mastercard).

International customers: Payment on foreign orders may be made by any of the following:

- Banker's draft against U.S.A. bank,
- International money order,
- Purchase order,
- Credit card (Visa, Mastercard)

Payments for domestic or international orders using a credit card receive a 10% discount on the final bill.

URL: <http://minerals.cr.usgs.gov/geochem/syenitestm1.pdf>

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